JAIPURIA INSTITUTE OF MANAGEMENT
LUCKNOW NOIDA JAIPUR INDORE

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA
PGDM / PGDM (M) / PGDM (SM)
FIRST TRIMESTER (Batch 2020-22)
END TERM EXAMINATIONS, NOV-2020
SET-I

Course Name: Statistics for Management **Course Code:** OM 101

Instructions:

1. All questions are compulsory and are given in worksheets Q1, Q2, Q3 and Q4
2. Save the downloaded excel file as rollno_name **properly on your desktop**
3. Save your workbook multiple times during examination and avoid making multiple copies.
4. Upload the correct solved answer sheet **carefully**, as you can upload only once.
5. For each question type your answer below this caption----------> **Type your answer here ↓**
6. Insert more rows for answers if required.

1-In the midst of labor management negotiations, the president of the company argues that the company's blue collar workers, who are paid of average $ 30000 per year are well paid because the average annual income of all blue collar workers in the country is less than $30000.That figure is disputed by the union, which does not believe that the annual income of all blue collar workers in the country is less than $30000. To test the company president's belief, an arbitrator draws a ramdom sample of 60 such workers from across the country and asks each to report his or her annual income. Assuming the normal distribution of annual income with a SD of $8000 and at 5% level of significance, analyse whether the claim of the president of the company is correct. **6 Marks**

Annual Income (in $)	**Type your answer here ↓**
29109	
21546	
30417	
10104	
19279	
27578	
23581	
26949	
35423	
12971	
37895	
31308	
28256	
31494	
31552	
34440	
33347	
26768	
25225	
29250	
23437	
31921	
19869	
31693	

2 (a) Cool-Sundae" is an ice cream parlour in NCR. The sale of ice-cream scoops follows normal distribution with the average ice-cream consumption of 300 scoops per day and standard deviation of 40 scoops. Calculate the probability that on a given day, the ice cream consumption will be less than 230 scoops? More than 375 scoops? Between 321 and 357 scoops?

2* 3 = 6 Marks

Type your answer here ↓

2 (b) An investment analyst collects data on stocks and notes whether or not dividends were paid and whether or not the stocks increased in price over a given period.

2* 3 = 6 Marks

	Price Increase	**No Price Increase**
Dividends paid	34	78
No dividends paid	85	49

Examine and identify type of probability in the given scenario

a)If a stock is selected at random out of the analyst's list of 246 stocks, what is the probability that it increased in price?

b)If a stock is randomly selected, what is the probability that it both increased in price and paid dividends?

c)Given that a stock increased in price, what is the probability that it also paid dividends?

Type your answer here ↓

3-The following data represent business startup costs (in thousands of dollars) for different types of businesses.
Is there a significant difference between business startup costs and type of businesses. Examine at 1 % level of significance.
Based on descritive statistics, which business you would chose and why?
Also, analyse which business is more consistent in term of business start-up cost. **(6 + 3 + 3 = 12 Marks)**

Start-up costs for pizza	start-up costs for donuts	startup costs for shoe stores	startup costs for gift shops	startup costs for pet stores
80	150	48	100	25
125	40	35	96	80
35	120	95	35	30
58	75	45	99	35
110	160	75	75	30
140	60	115	150	28
97	45	42	45	20
50	100	78	100	75
65	86	65	120	48
79	87	125	50	20
35	90			50
85				75
120				55
				60
				85
				110

Type your answer here ↓

4-The following is the data given for 11 patients suffering from systolic blood pressure.

a Identify the dependent and independent variables. **2 Marks**

b Determine whether age and weight of patients related to their systolic blood pressure? **2 Marks**

c Interpret R Square. **2 Marks**

d Estimate the regression equation. **2 Marks**

e Predict the systolic blood presssure of a patient whose age is 40 years and weight is 230 pounds. **2 Marks**

Systolic Blood Pressure	Age (in years)	Weight (in pounds)
132	52	173
143	59	184
153	67	194
162	73	211
154	64	196
168	74	220
137	54	188
149	61	188
159	65	207
128	46	167
166	72	217

Type your answer here ↓

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1-In last few years a number of web based companies that offer job placement services have been created. The manager of one such company wanted to investigate the job offers recent PGDM's were obtaining. In particular, she wantes to know whether finance major were being offered higher salaries than marketing majors. In a preliminary study, she randomly selected a sample of 50 recently graduated PGDM's, half of whom majored in Finance and half in marketing. From each she obtained the highest salary offers.
The data is listed below. Can we infer that finance mojors obtain higher salary offers than do marketing majors among PGDM's?
Based on descritive statistics, which stream you would chose and why?
Also, comment on that students from which specialization are more consistent in terms of getting salaries. **6+3+3 = 12 Marks**

Finance	Marketing
61228	73361
51836	36956
20620	63627
73356	71069
84186	40203
79782	97097
29523	49442
80645	75188
76125	59854
62531	79816
77073	51943
86705	35272
70286	60631
63196	63567
64358	69423
47915	68421
86792	56276
75155	47510
65948	58925
29392	78704
96382	62553
80644	81931
51389	30867
61955	49091
63573	48843

2-The following is the data given for 40 students registered in a particular course.

a Identify the dependent and independent variables. **2 Marks**

b Determine whether number of books read, number of classes attended and course grade are relate **2 Marks**

c Interpret R Square. **2 Marks**

d Estimate the regression equation. **2 Marks**

e Predict the course grade for a student who attended 25 classes and read 3 books. **2 Marks**

Number of books read in a course	Number of classes attended	Course grade
0	9	45
1	15	57
0	10	45
2	16	51
4	10	65
4	20	88
1	11	44
4	20	87
3	15	89
0	15	59
2	8	66
1	13	65
4	18	56
1	10	47
0	8	66
1	10	41
3	16	56
0	11	37
1	19	45
4	12	58
4	11	47
0	19	64
2	15	97

3-The following data represent percentages of adults whose primary employment involves consulting which can be done from home. As per the previous survey conducted five years back the average percentage of such consultant professionals was 6.2 percent. Use appropriate test to find whether there is any significant change in the percentage of consultant professionals. Test at 5% level of significance. **6 Marks**

Percentage
4.3
5.1
3.1
8.7
4
5.2
11.8
3.4
8.5
3
4.3
6
3.7
3.7
4
3.3
2.8
2.8
2.6
4.4
7
8
3.7
3.3
3.7
4.9
3

4a-A person goes to office either by car, scooter, bus or train, the probability of which being 0.17, 0.37, 0.27 and 0.19 respectively. The probabilities that he reaches the office late, if he takes a car, scooter, bus or train are 0.29, 0.19, 0.49 and 0.21, respectively. Given that he reaches the office late, then what is the probability that he travelled by car or by bus? **6 Marks**

4b-An economist believes that during periods of high economic growth, the U.S. dollar appreciates with probability 0.70; in periods of moderate economic growth, the dollar appreciates with probability 0.40; and during periods of low economic growth, the dollar appreciates with probability 0.20. During any period of time, the probability of high economic growth is 0.30, the probability of moderate growth is 0.50, and the probability of low economic growth is 0.20. Suppose the dollar has been appreciating during the present period. What is the probability if we are experiencing a period of high economic growth? **6 Marks**